CLAIMS

What is claimed is:

1.   A computer-implemented design tool for analyzing a wire harness design for an electrical system, comprising:

a data store containing a synchronizing rule set;

a synchronizer adapted to receive physical data indicative of physical attributes of an electrical system and electrical data indicative of electrical attributes of the electrical system, the synchronizer connected to the data store and operable to merge the physical data with the electrical data to form a synchronized data file in accordance with the synchronizing rule set; and

a user interface operable to manipulate data in the synchronized data file.

2.   The computer-implemented design tool of Claim 1 wherein physical data is further defined as topographical data for at least one wire harness in the electrical system.

3.   The computer-implemented design tool of Claim 2 wherein the topographical data is selected from the group consisting of bundle data, connector data, splice data, take out data and non-electrical component data.

4.   The computer-implemented design tool of Claim 1 wherein the synchronizer is connected to a computer-aided design (CAD) tool and operable to extract the physical data for the electrical system from the CAD tool.

5.   The computer-implemented design tool of Claim 1 wherein electrical data is further defined as wire layout data for at least one wire associated with the electrical system.

6.   The computer-implemented design tool of Claim 1 wherein the electrical data is input via the user interface.

7.   The computer-implemented design tool of Claim 1 wherein the synchronized data file having a data format different from a format for the physical data.

8.   The computer-implemented design tool of Claim 1 further comprises an interface having access to the synchronized data file and operable to generate an output file formatted for input into at least one of an electrical simulation tool and a computer-aided engineering tool.

9.   The computer-implemented design tool of Claim 1 wherein the user interface is operable to display data from the synchronized data file.

10. The computer-implemented design tool of Claim 1 wherein the user interface is adapted to receive changes to data contained in the synchronized data file and to store changes to the data in the synchronized data file.

11. A computer-implemented design tool for analyzing a wire harness design for an electrical systems, comprising:

a data store containing a synchronizing rule set;

a synchronizer adapted to receive topographical data for at least one wire harness in the electrical system and wire layout data for at least one wire routed in said wire harness, the synchronizer connected to the data store and operable to merge the wire data with the topographical data to form a comprehensive wire harness data file in accordance with the synchronizing rule set; and

a user interface operable to manipulate data in the wire harness data file.